610 N. College Ave.
Department of Mathematics
Claremont, CA 91711
(909) 607-8717
jo.hardin@pomona.edu

Education

Ph.D. Statistics, University of California, Davis 2000
Dissertation: **Multivariate Outlier Detection and Robust Clustering with Minimum Covariance Determinant Estimation and S-Estimation**.
Adviser: Dr. David M. Rocke.

M.S. Statistics, University of California, Davis 1997

B.A. Mathematics, Pomona College, Claremont, California 1995
Adviser: Dr. Donald Bentley.

Employment

Professor of Mathematics, Pomona College 2015 - present

Chair, Department of Mathematics, Pomona College 2013 - 2016

Associate Professor of Mathematics, Pomona College 2008 - 2015

Assistant Professor of Mathematics, Pomona College 2002 - 2008

Staff Scientist, Fred Hutchinson Cancer Research Center 2000 - 2002

Lecturer, Seattle University, Albers School of Business and Economics 2001 - 2002

Associate Instructor, UC Davis, Division of Statistics 1997 - 1999

Honors and Awards

Elected Member of the International Statistics Institute 2018
Mu Sigma Rho, William D. Warde Statistics Education Award 2018
Wig Distinguished Professor award 2016
Fellow of the American Statistical Association 2015
Mathematical Association of America, Hogg Award for Excellence in Teaching Introductory Statistics 2014
American Statistical Association, Waller Education Award 2007
Appointed to CGU's Extended Graduate Faculty 2003
Project NExT Fellow 2002-2003
Graduate Student Association Travel Award, UC Davis 2000
Student Paper Competition Runner-Up, Joint Meeting of WNAR, IBS, & IMS 1999
Julius Blum Award, Division of Statistics, UC Davis 1995-1996
Phi Beta Kappa, Pomona College 1995
Sigma Xi, Pomona College 1995
Graduated Cum Laude, (B.A.), Pomona College 1995
Graduated with Honors, Mathematics Department, Pomona College 1995

Fellowships and Grants

NSF HDR DSC: Collaborative Research, external advisory committee 2019-2022
Title: "The Data Science WAV: Experiential Learning with Local Community Organizations"
PI: Benjamin Baumer $581,902
Role: External advisory committee

NSF Improving Undergraduate STEM Education (IUSE) Grant 2017-2020
Title: "Creating Opportunities for Data Proficiency in Undergraduate Students"
PI: Anna Bargagliotti $265,853
Role: Advisory panelist

NIH Mouse Models of Human Cancers Consortium Grant 2015-2019
Title: "Leveraging Genetically-Engineered Mice to Optimize Pediatric Glioma"
PI: David Gutmann & Ami Radunskaya $160,916.93
Role: Co-principal Investigator

CHAS Faculty Grant Proposal for Promoting Excellence 2014-2015
Consortium on High Achievement and Success
Title: "Advising Traditionally Underrepresented Students for Retention in Mathematics"
Principal Investigator $6,400

HHMI 5C Summer Collaborative Grant Summer 2013
Title: "The role of RpoS level in regulating genome-wide patterns of transcription"
Role: Principal Investigator $13,000

Mellon Foundation Workshop Grant January 2011
Title: "Strengthening Bridges between Statistics and the Natural Sciences"
Role: Principal Investigator $19,100

National Science Foundation Research Experience for Undergraduates summers 2009, 2010, 2011
Title: "Claremont Colleges Mathematics REU Site"
PI: Christopher Towse $275,000
Role: Co-principal Investigator

Mellon Foundation Workshop Grant summer 2008
Title: "Student/Faculty Research Models in Computational Biology"
Role: Senior Personnel $16,762

HHMI Interdisciplinary Research Grant summer 2007
Title: "Statistical Estimation of Physiological Performance"
PI: Stephen Adolph $10,500
Role: Co-principal Investigator

Mellon Foundation Workshop Grant summer 2007
Title: "The Future of Statistics Consultation, Training, and Curriculum across the Liberal Arts College"
Role: Co-principal Investigator $14,000

Mellon Foundation Faculty Career Enhancement Grant summer 2006
Title: "Clustering Microarray Data"
Role: Principal Investigator $4,500

National Science Foundation Research Experience for Undergraduates summers 2005, 2006, 2007
Title: "Claremont Colleges Mathematics REU Site"
PI: Jim Hoste $195,977
Role: Senior Personnel

Center for Quantitative Life Sciences summer 2005
Title: "Statistical Estimation of Physiological Performance"
PI: Stephen Adolph $17,904
Role: Co-principal Investigator

Howard Hughes Medical Institute 2004-2008
Title: "2004 Undergraduate Science Education Award"
Role: Senior Investigator on institutional grant $1.3 million

National Institutes of Health Conference Grant 1 R13 CA110472-01 2004 & 2005
Title: "Seventh and Eighth Meetings of New Researchers"
Role: Principal Investigator $22,000

National Institutes of Health 2003-2005
Academic Research Enhancement Award Grant #1 R15 AG021907-01A1
Title: "Microarray Analysis of Yeast Aging"
PI: Laura Hoopes $100,000
Role: Co-principal Investigator

National Science Foundation Major Research Instrumentation Grant #0318944 2003-2006
Title: "Genomic and Genetic Analysis for Pomona College"
PI: Laura Hoopes $233,000
Role: Senior Investigator

University of California, Davis Fellowship 1995 - 1997
Title: "Eugene Cota-Robles Fellowship"
Role: Recipient Fees, tuition, and a $2,000 monthly stipend for two years

Publications and Papers

- **Peer-reviewed articles**

33. Hardin, J., Haushalter, K., Yong, D. **Turning STEM Education Inside-Out: Teaching and Learning Inside of Prisons**, *Science Education and Civic Engagement: An International Journal*, accepted.

32. Lu, B.[†], Hardin, J. **A Unified Framework for Random Forest Prediction Error Estimation**, *Journal of Machine Learning Research*, accepted. `https://arxiv.org/abs/1912.07435`

31. Kim, A.Y., Hardin, J. **"Playing the whole game": A data collection and analysis exercise with Google Calendar**, *Journal of Statistics Education*, accepted.

30. Allison, K.[†], Hallman, M.[†], Koskelo, E.[†], Radunskaya, A., Hardin, J., Hudgings, J. **Increasing the speed of CCD-based thermoreflectance imaging**, *Review of Scientific Instruments* 91: 044901, 2020. `https://doi.org/10.1063/1.5135922`

29. Baumer, B., Bray, A., Çetinkaya-Rundel, M., and Hardin, J. **Teaching Introductory Statistics with DataCamp**, *Journal of Statistics Education*, 28(1): 89-97, 2020.

28. Fiksel, J., Jager, L., Hardin, J., Taub, M. **Using GitHub Classroom To Teach Statistics**, *Journal of Statistics Education*, 27(2): 110-119, 2019.

27. Duron, C., Pan, Y., Gutmann, D., Hardin, J., Radunskaya, A. **Variability of Betweenness Centrality and Its Effect on Identifying Essential Genes**, *Bulletin of Mathematical Biology*, 81: 3655-3673, 2019.

26. Evans, C.[†], Hardin, J., Stoebel, D. **Selecting between-sample RNA-Seq normalization methods from the perspective of their assumptions.** *Briefings in Bioinformatics*, 19(5): 776-792, 2018. `https://arxiv.org/abs/1609.00959`

    - Tutorial on RNASeq Normalization and Differential Expression (Computational Genomics Summer Institute @ IPAM, 2016): `http://computationalgenomics.bioinformatics.ucla.edu/portfolio-item/jo-hardin-tutorial-on-rnaseq-normalization-and-differential-expression/`
    - Assumptions in Normalizing RNASeq Data (Computational Genomics Summer Institute @ IPAM, 2016): `http://computationalgenomics.bioinformatics.ucla.edu/portfolio-item/jo-hardin-assumptions-in-normalizing-rnaseq-data/`

25. Hardin, J. **Fun, Not Competition: The Story of My Math Club**, *Journal of Humanistic Mathematics, 8(1):* 350-358, 2018. `http://scholarship.claremont.edu/jhm/vol8/iss1/17/`

[†]Work done as an undergraduate student.
[‡]Co-corresponding authors.

24. Pan, Y., Duron, C., Bush, E., Sims, P., Hardin, J.‡, Radunskaya, A.‡, and Gutmann, D.‡ **Graph Complexity Analysis Identifies an ETV5 Tumor-Specific Network in Human and Murine Low-Grade Glioma**, *PLoS ONE*, 13(5): e0190001, 2018. http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0190001

23. Hardin, J. **Dynamic Data in the Statistics Classroom**, *Technology Innovations in Statistics Education*, 11(1), 2018. https://escholarship.org/uc/item/13g5g3dm

    - Dynamic Data in the Classroom (eCOTS 2016): https://www.causeweb.org/cause/ecots/ecots16/posters/a/7
    - Dynamic Data (useR 2016): https://channel9.msdn.com/events/useR-international-R-User-conference/useR2016/Dynamic-Data-in-the-Statistics-Classroom

22. Wong, G.†, Bonocora, R., Schep, A.†, Beeler, S.†, Lee, A., Shull, L.†, Batachari, L.†, Dillon, M.†, Evans, C.†, Becker, C.†, Bush, E., Hardin, J., Wade, J., and Stoebel, D. **The genome-wide transcriptional response to varying RpoS levels in *Escherichia coli K-12***, *Journal of Bacteriology*, 199:e00755-16, 2017. http://biorxiv.org/content/early/2016/10/21/082537

21. Coleman, J.†, Replogle, J.†, Chandler, G., and Hardin, J. **Resistant Multiple Sparse Canonical Correlation**. *Statistical Applications in Genetics and Molecular Biology*, **15**: 123-138; 2016. http://arxiv.org/abs/1410.3355

20. Hardin, J., Hoerl, R., Horton, N.J., and Nolan, D. **Data Science in Statistics Curricula: Preparing Students to 'Think with Data'**. *The American Statistician 69*: 4, 2015. http://arxiv.org/abs/1410.3127

19. Hardin, J., Sarkis, G., and URC, P.C.† **Network Analysis with the Enron Email Corpus**. *Journal of Statistics Education, 23*:2, 2015. http://arxiv.org/abs/1410.2759 (P.C. URC stands for the Pomona College Undergraduate Research Circle whose members for this project were Timothy Kaye, David Khatami, Daniel Metz, and Emily Proulx.) https://amstat.tandfonline.com/doi/abs/10.1080/10691898.2015.11889734

18. Hardin, J., Garcia, S.R., and Golan, D. **A method for generating realistic correlation matrices**. *Annals of Applied Statistics*, **7**: 1733-1762, 2013. http://arxiv.org/abs/1410.3370

17. Brieger, K.†, and Hardin, J. **Medicine and Statistics: the inextricable link**, *Chance*, **25**: 31-34; 2012.

16. Head, A.†, Hardin, J., Adolph, S.; **Methods for estimating peak physiological performance and correlating performance measures**, *Environmental and Ecological Statistics*, **19**: 127-137; 2012.

15. Karnovsky, N.J., Brown, Z.W.†, Welcker, J., Harding, A.M.A., Walkusz, W., Cavalcanti, A., Hardin, J., Kitaysky, A., Gabrielsen, G., Grémillet, D. **Inter-colony comparison of diving behavior of an Arctic top predator: implications for warming in the Greenland Sea**, *Marine Ecology Progress Series*, **440**: 229-240; 2011. (DOI: 10.3354/meps09351)

14. Grosfils, E.B., Long, S.M.†, Venechuk, E.M.†, Hurwitz, D.M.†, Richards, J.W.†, Kastl, B.†, Drury, D.E.†, and Hardin, J., **Geologic map of the Ganiki Planitia quadrangle (V-14), Venus**: *U.S. Geological Survey Scientific Investigations Map 3121*, 2011. `http://astrogeology.usgs.gov/Projects/PlanetaryMapping/MapStatus/VenusStatus/V14.html`

13. Richards, J.†, Hardin, J., Grosfils, E.; **Weighted Model-Based Clustering for Remote Sensing Image Analysis**, *Computational Geosciences*, **14**: 125-136; 2010. (DOI: 10.1007/s10596-009-9136-z)

12. Hardin, J., Wilson, J.; **A note on oligonucleotide expression values not being normally distributed**, *Biostatistics*, **10**: 446-450; 2009.

11. Yiu, G.†, McCord, A.†, Wise, A.†, Jindal, R.†, Hardee, J.†, Kuo, A.†, Yuen Shimogawa, M.†, Cahoon, L., Wu, M., Kloke, J., Hardin, J., Mays Hoopes, L.L.; **Pathways Change in Expression During Replicative Aging in *Saccharomyces cerevisiae*** , *Journal of Gerontology, 63A*: 21-34; 2008.

10. Hardin, J., Mitani, A.†, Hicks, L.†, VanKoten, B.†; **A Robust Measure of Correlation between Two Genes on a Microarray**, *BMC Bioinformatics*, **8**:220; 2007.

9. Adolph, S., Hardin, J.; **Estimating Phenotypic Correlations: Correcting for Bias Due to Intraindividual Variability**, *Functional Ecology*, **21**:178-184; 2007.

8. Wise, A.†, Hardin, J., Hoopes, L.; **Yeast Through the Ages: a statistical analysis of genetic changes in aging yeast**, *Chance*, **19**: 39-44; 2006.

7. Hardin, J., Hoopes, L., Murphy, R.†; **Analyzing DNA Microarrays with Undergraduate Statisticians**, *Proceedings of the Seventh International Conference on Teaching Statistics*, 2006. `http://www.stat.auckland.ac.nz/~iase/publications.php?show=17`
course modules available at:
`http://pages.pomona.edu/~jsh04747/courses/microarray/modules.htm`

6. Hardin, J., Rocke, D.; **The Distribution of Robust Distances**; *Journal of Computational and Graphical Statistics*, **14**: 928-946; 2005.

5. Hardin, J., Waddell, M., Page, D., Zhan, F., Barlogie, B., Crowley, J., Shaughnessy, J.; **Evaluation of Multiple Models to Distinguish Closely Related Forms of Disease Using DNA Microarray Data: an Application to Multiple Myeloma**, *Statistical Applications in Genetics and Molecular Biology*, **3**: article 10; 2004.

4. Hardin, J., Rocke, D.; **Outlier Detection in the Multiple Cluster Setting Using the Minimum Covariance Determinant Estimator**, *Computational Statistics and Data Analysis*, **44**: 625-638; 2004.

3. Durbin, B., Hardin, J., Hawkins, D., Rocke, D.; **A Variance-Stabilizing Transformation for Gene-Expression Microarray Data**; *Bioinformatics*, **18**: S105-S110; 2002.

2. Zhan, F., Hardin, J., Kordsmeier, B., Bumm, K., Zheng, M., Tian, E., Sanderson, R., Yang, Y., Wilson, C., Zangari, M., Anaissie, E., Morris, C., Muwalla, F., van Rhee, F., Fassas, A.,

Crowley, J., Tricot, G., Barlogie, B., Shaughnessy, J.; **Global Gene Expression Profiling of Multiple Myeloma, Monoclonal Gammopathy of Undetermined Significance, and Normal Bone Marrow Plasma Cells**; *Blood*, **99**: 1745-1757; 2002.

1. Coleman, D., Dong, X., Hardin, J., Rocke, D.M., Woodruff, D.L.; **Some Computational Issues in Cluster Analysis with no á priori Metric**; *Computational Statistics and Data Analysis*, **31**: 1-11; 1999.

• **Textbooks**

1. Çetinkaya-Rundel, M., Hardin, J. **OpenIntro: Introduction to Modern Statistics**, 2021. `https://openintro-ims.netlify.app/`

• **Chapters in an edited book**

4. Hardin, J. **9 out of 10 Seniors Recommend this First-Year Seminar: Statistics in the Real World**, In *Mathematical Themes in a First-Year Seminar*, eds. J. Schaefer, J. Bowen, M. Kozek, and P. Pierce, MAA Notes Series; 2020, accepted.

3. Hardin, J., Kloke, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2017.

2. Kloke, J., Hardin, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2008.

1. Pauler, D., Hardin, J., Faulkner, J., Leblanc, M., Crowley, J.; **Survival Analysis with Gene Expression Arrays.** In *Handbook of Statistics 23: Advances in Survival Analysis*, eds. N. Balakrishnan and C.R. Rao, Elsevier Science: Amsterdam; 2004.

• **Pre-prints**

3. Cruz, M.†, Wei, A.†, Hardin, J., and Radunskaya, A. **Long Term Averages of the Stochastic Logistic Map.** In preparation.

2. Hardin, J. and Shahriari, S. **Community, Collaboration, and Climate**. In preparation.

1. Çetinkaya-Rundel, M., Baumer, B., Hardin, J., McNamara, A., and Rundel, C. **An Educator's Perspective on the Tidyverse**. In preparation.

• **Other Papers**

19. Glanz, H., Hardin, J., and Horton, N. **Teach Data Science**. Fourteen blog entries in the summer of 2020 with a focus on the ethical aspects of data science. `https://teachdatascience.com/closing2020/`

18. Glanz, H., Hardin, J., and Horton, N. **Teach Data Science**. 50 blog entries in the summer of 2019 describing different aspects of data science and teaching data science. `https://teachdatascience.com/closing/`

17. Hardin, J., Miller, J. **The Evolution of Variables and the Existence of Trans People**. *Amstat News*, March 2019.
http://magazine.amstat.org/blog/2019/03/01/evolutionofvariables/

16. Horton, N., Hardin, J. **Challenges and Opportunities for Statistics and Data Science Undergraduate Major and Minor Degree Programs.** *Proceedings of the Tenth International Conference on Teaching Statistics*, 2018.
http://iase-web.org/icots/10/proceedings/pdfs/ICOTS10_3A3.pdf

15. Hardin, J., Horton, N. **Ensuring That Mathematics is Relevant in a World of Data Science**, *Notices of the AMS*, October, 2017.

14. Hardin, J. **Expectations and Skills for Undergraduate Students Doing Research in Statistics and Data Science**, *Amstat News*, September, 2017.
http://magazine.amstat.org/blog/2017/09/01/undergraduateexpectations/

13. Evans, C.†, Hardin, J., Huber, M., Stoebel, D., and Wong, G.† **Differential expression analysis for multiple conditions.** 2017. http://arxiv.org/abs/1410.3370

12. Blog on the ASA's 2016 Presidential Election Prediction Contest,
https://www.r-bloggers.com/presidential-election-predictions-2016-an-asa-competition/
also featured on the Data Skeptic podcast,
http://dataskeptic.com/epnotes/election-predictions.php, 2016.

11. Blog on using tactile simulations in class, "Chocolate: tactile simulations without data collection," https://www.causeweb.org/sbi/?p=1163, 2016.

10. Guest editor for *The American Statistician* with Nick Horton at Amherst College. Put together a special issue on the ASA's 2014 updated curriculum guidelines for undergraduate programs in statistics http://www.amstat.org/education/curriculumguidelines.cfm.

    - Horton, N. and Hardin, J. **Teaching the Next Generation of Statistics Students to "Think with Data": Special Issue on Statistics and the Undergraduate Curriculum**, *The American Statistician, 69*: 4, 2015. [As of Oct 26, 2017, the second most read article in *The American Statistician.*]
      - Hardin, J. and Horton, N. "Preparing the Next Generation of Students in the Mathematical Sciences to 'Think with Data' ,"
      http://blogs.ams.org/matheducation/2016/02/22/preparing-the-next-generation-of-students-in-the-mathematical-sciences-to-think-with-data/, 2016.
      - Horton, N. "Teaching Next Generation to 'Think with Data' "
      http://www.datascienceassn.org/content/teaching-next-generation-think-data, 2016.

9. Guest editor for *Chance*, put together a special issue on Culture of Statistics in Medicine. Responsible for finding all of the contributed articles, finding referees, refereeing, putting the articles together, and writing the following articles:

    - Hardin, J. **Editor's Letter**, *Chance, 25*: 3; 2012.

- Hardin, J. **Changes Across 25 Years of Medicine**, *Chance, 25*: 35-37; 2012. [This piece is a series of interviews with experts in the field of medicine on their views of how statistics is changing medicine. I interviewed the editor of the *New England Journal of Medicine*, a preeminent doctor/researcher of lung cancer, the director of the LA County Department of Public Health, and a Harvard statistician who sits on the editorial board of the *New England Journal of Medicine*.]

8. Hardin, J.; `biwt` package as a contribution to the statistical software R. 2009.

7. Hardin, J.; **Book Review: *DNA Microarrays and Related Genomics Techniques: Design Analysis, and Interpretation of Experiments* by D.B. Allison, G.P. Page, T.M. Beasley, and J.W. Edwards**, *Journal of Biopharmaceutical Statistics*, **17**: 187-190; 2007.

6. Hardin, J.; **Book Review: *Introduction to Statistics Through Resampling Methods and R/S-Plus* by Philip Good**, *The American Statistician*, **60**: 343-344; 2006.

5. Hardin, J.; **Book Review: *Design and Analysis of DNA Microarray Investigations* by R. M. Simon, E.L. Korn, L.M. McShane, M.D. Radmacher, G.W. Wright, and Y. Zhao**, *Journal of Biopharmaceutical Statistics*, **15**: 747-749; 2005.

4. Altman, N., Banks, D., Hardwick, J., Roeder, K., Craigmile, P., Hardin, J., and Gupta, M. **The IMS New Researchers' Survival Guide**, Institute of Mathematical Statistics; 2005. `http://www.imstat.org/publications/books/NewResearchersGuide.pdf`

3. Hardin, J. **IMS New Researchers' Conference**, *IMS Bulletin*, **34**: Issue 9, 5; 2005.

2. Escobar, A.[†], Myhre, J., Hardin, J.; **Statistics Colloquia at Undergraduate Colleges**, *Amstat News*, Issue #331; January 2005,.

1. Hardin, J.; **Microarray Data from a Statistician's Point of View**, *STATS: The Magazine for Students of Statistics*, **42**: 4-13; Winter 2005.

Student Successes

"Data Exploration of US Police Stops" 2020
Amber Lee, Arm Wonghirundacha, Emma Godfrey, Ethan Ong, Ivy Yuan, Oliver Chang, and Will Gray
Data Science Research Circle, supervised by Jo Hardin and Ghassan Sarkis
https://hardin47.github.io/TrafficRC2020/Report/

DataFest - Judges' Choice Award 2020
Guy Thampakkul and Tai Xiang
http://datafest.stat.ucla.edu/2020-results/2020-winners/

Christina Duron, PhD Claremont Graduate University 2019
"The Distribution of Betweenness Centrality in Exponential Random Graph Models"
http://pages.pomona.edu/~jsh04747/Student%20Theses/christina_duron_2019.pdf

DataFest – Best Use of External Data 2019
Amy Watt, Adam Rees, Ethan Ashby, Connor Ford, and Madelyn Andersen (HMC).
http://datafest.stat.ucla.edu/past-datafests/2019-asa-datafesttm-results/

DataFest - Best Insight, honorable mention 2018
Vedant Vohra, Zihao Xu, Madison Hobbs, Xiaotong Gui
http://datafest.stat.ucla.edu/past-datafests/2018-asa-datafesttm-results/

Winning Paper Undergraduate Statistics Research Project Competition 2017
https://www.causeweb.org/usproc/usresp/2017/fall/winners
Bag of Little Random Bootstraps, Z. Xu

DataFest - Judges' Choice Award 2017
J. Carney, H. Shin, A. Starr
http://datafest.stat.ucla.edu/past-datafests/2017-asa-datafesttm-results/

Winning Paper Undergraduate Statistics Research Project Competition 2014
https://www.causeweb.org/usproc/USRESP%20Winning%20Projects
Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus, T. Kaye, D. Khatami, D. Metz, E. Proulx (Research Circle)

Kaye, T., Khatami, D., Metz, D., Proulx, E. **Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus**; *SIAM Undergraduate Research Online*, **7**: 2014.
https://www.siam.org/publications/siuro/volume-7

DataFest - Best Insight 2013
J. Coleman, M. Cruz, B. DeRose, C. Evans, R. Knickerbocker, K. Lu, D. Owens-Oas,
B. Shand, B. Williamson

DataFest - Best Use of External Data 2012
K. Kumbier, E. Parks, J. Replogle

DataFest - Best Visualization, honorable mention 2012
D. DiPalma, T. Stutz

Professional Workshops & Organized Sessions

Computational Genomics Summer Institute, UCLA — July 2019
Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2019/

Computational Genomics Summer Institute, UCLA — July 2018
Journal Club — Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2018/

StatPREP — June 2018
Statistics workshop for community college instructors — Instructor
http://statprep.org/

Computational Genomics Summer Institute, IPAM, UCLA — July 2017
Teaching Bioinformatics Lunch — Program Faculty
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2017/

Computational Genomics Summer Institute, IPAM, UCLA — July 2016
Tutorial on RNASeq Normalization and Differential Expression — Program Faculty
https://www.youtube.com/watch?v=YrQPA23PXSY&index=6&list=PLHyI3Fbmv0Sd763rgnjcgpG3EkFgdK-2b
http://computationalgenomics.bioinformatics.ucla.edu/programs/cgsi-2016/

Computational & Visualization Consortium Workshop, Claremont, CA — June 2016
Dynamic Data and Working with Data — Organizer
http://cvc.mosaic-web.org/Summer2016/schedule2016.html

Computational & Visualization Consortium Workshop, Claremont, CA — July 2015
Project: Dynamic Data — Funded Participant

Joint Statistical Meetings, Montreal — August, 2013
Herd Immunity: Teaching Techniques for the Health Sciences — Organizer

Institute for Pure and Applied Mathematics, UCLA — Fall, 2011
Mathematical and Computational Approaches in High-Throughput Genomics — Funded Participant

Strengthening Bridges between Statistics and the Natural Sciences — January, 2011
Funded by the Mellon Foundation — Organizer

Student/Faculty Research Models in Computational Biology — June 18-20, 2008
Funded by the Mellon Foundation — Organizer

The Future of Statistics Consultation, Training and Curriculum across the Liberal Arts College — July 25-27, 2007
Funded by the Mellon Foundation — Organizer

Mathematical Sciences Research Institute, Berkeley, CA — May 3-5, 2006
Mathematical Systems Biology of Cancer — Funded Participant

Mathematical Biosciences Institute, Columbus, OH — February 21-24, 2005
Emerging Genomic Technologies and Data Integration Problems — Funded Participant

Genome Consortium on Active Teaching, Washington, DC Best Practices Workshop	July 6-9, 2004 Workshop Instructor
Genome Consortium on Active Teaching, Seattle, WA Best Practices Workshop	August 13-15, 2003 Founding Organizer

Professional Presentations

"Using GitHub with Statistics Undergraduates" 2019
Symposium on Data Science and Statistics, Bellevue, WA

"Normalization and Differential Expression" 2019
Computational Genomics Summer Institute, UCLA

"Issues in sequencing depth when clustering genetic profiles measured across varying levels of Rpos protein" 2018
Computational Genomics Summer Institute, UCLA

"Challenges and Opportunities for Statistics and Data Science Undergraduate Major and Minor Degree Programs" 2018
International Conference on Teaching Statistics, Kyoto, Japan

"Prediction intervals for random forests" 2018
Applied Math Seminar, Claremont, CA

"Why I mentor" 2017
Women in Statistics & Data Science, La Jolla, CA

"Prediction intervals for random forests with applications to high throughput data" 2017
Computational Genomics Summer Institute, UCLA

"Expectations and Skills for Undergraduate Students doing Research in Statistics and Data Science" 2017
Joint Statistical Meetings, Baltimore, MD

"Assumptions in Normalizing RNA-Seq Data" 2017
Bioinformatics Seminar, UCLA, CA

"Where do Mathematics and Statistics fit in to a World of Data Science?" 2017
Breaking Boundaries in STEM Education Research, Loyola Marymount University, CA

"Dynamic Data in the Statistics Classroom" (e-poster) 2016
Women in Statistics and Data Science Conference, Charlotte, NC

"Assumptions in Normalizing RNASeq Data" 2016
Computational Genomics Summer Institute, IPAM, UCLA
`https://www.youtube.com/watch?v=TwW_8-ZhfCM`

"Dynamic Data in the Statistics Classroom" 2016
UseR, Palo Alto, CA
`https://channel9.msdn.com/Events/useR-international-R-User-conference/useR2016/Dynamic-Data-in-the-Statistics-Classroom`

"Dynamic Data in the Statistics Classroom" (5 min e-poster) 2016
eCOTS (electronic Conference on Teaching Statistics)
`https://www.causeweb.org/cause/ecots/ecots16/posters/a/7`

"Resistant Multiple Sparse Canonical Correlation with High-Throughput Data" 2016
Statistics Seminar, UC Irvine

"The Undergraduate Curriculum of the Future" 2015
Joint Statistical Meetings, Seattle, WA

" 'Data' vs. 'Fest': the student perspective at DataFest" 2014
Joint Statistical Meetings, Boston, MA

"DESeq Plus: expanding DESeq to comparisons of more than 2 groups" 2014
EDGE Program Mathematics Colloquium, Claremont, CA
(also presented at IPAM workshop, Lake Arrowhead, CA (2014);
UCLA Statistics Seminar, LA, CA (2014))

"Towards a more conceptual way of understanding and implementing inferential rules" 2014
Poster Presenter, International Conference on Teaching Statistics, Flagstaff, AZ

"Big Data, Data Science, and Next Steps for the Undergraduate Curriculum" 2014
Electronic Conference on Teaching Statistics

"Robust Sparse Canonical Correlation with High-Throughput Data" 2013
IPAM workshop, Lake Arrowhead, CA

"Biweight Estimation for Robust Analysis of High Throughput Data" 2012
International Conference on Robust Statistics, Burlington, VT

"Exploring Relationships: A Method for Generating Realistic Correlation Matrices" 2012
Loyola Marymount University, Statistics Seminar
(also presented at CSU Fullerton, Statistics Seminar (2011))

"Outliers when clustering microarray data" 2010
3^{rd} Annual Southern California Women in Math Symposium, Claremont, CA
(also presented at Claremont Colleges OR / Statistics / Math Finance Seminar, Claremont, CA (2009);
Claremont Colleges Mathematics Colloquium, Claremont, CA (2008);
Joint Statistical Meetings, Denver, CO (2008))

"Using False Discovery Rates to Determine Cutoffs for Cluster Membership" 2010
Joint Statistical Meetings, Vancouver, BC

"Biweight Correlation as a Measure of Correlation Between Genes on a Microarray" 2008
Statistics Colloquium, San Diego State University
(also presented at Department of Statistics, Cal Poly, San Luis Obispo (2006);
Division of Biostatistics, UC Davis (2006);
Deptartment of Statistics & Actuarial Science, U of Waterloo (2006);
Horvath working group, UCLA (2005))

"A Robust Measure of Correlation Between Two Genes on a Microarray" 2007
Graduate Seminar in Mathematics, CSU, Channel Islands
(also presented at Claremont Colleges Statistics Colloquium, Claremont, CA (2007);
Department of Statistics, UC, Riverside (2006);
Colloquium for Women in Mathematics, University of Southern California (2006);
Howard Hughes Summer Series, Claremont, CA (2006))

"Analyzing DNA Microarray Data with Undergraduate Statisticians" 2006
Invited speaker, Joint Statistical Meetings, Seattle, WA
(also presented at Invited speaker, 7^{th} International Conference on Teaching Statistics, Salvador, Brazil (2006))

"Collaborating, Data Analysis, and Science in Statistical Education" 2005
Invited Speaker, Joint Statistical Meetings, Minneapolis, MN

"Using Robust Measures to Describe Distributions and Similarities of Microarray Data" 2005
Mathematics Colloquium, Cal State Univ, Long Beach
(also presented at US/Japan Conference on Biostatistics, Seattle, WA (2004);
Joint Statistical Meetings, Toronto, Ontario (2004))

"Variability Sources in Gene Expression Data" 2004
Poster Presenter, Intelligent Systems of Molecular Biology, Glasgow, Scotland

"Transformations and Simulations of Microarray Data" 2003
Statistics Colloquium, University of California San Diego

"Simulating microarray data using the t-distribution" 2003
Joint Statistical Meetings, San Francisco, CA
(also presented at Working Group on Model Based Clustering, University of Washington, Seattle, WA (2003))

"Analyzing Microarray Data – Difficulties and Disasters" 2003
Claremont Colleges Statistics Colloquium, Claremont, CA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (2003))

"Model Based Clustering and Outlier Detection in Microarray Data" 2002
Invited Speaker, Joint Statistical Meetings, New York City, NY

"The Use of Gene Expression Profiling in the Quest to Understand the Molecular Basis of Multiple Myeloma" 2001
Invited presenter, Southwest Oncology Group Continuing Education Workshop, Chicago, IL

"Determining Outlying Points" 2001
Williams College Mathematics and Statistics Colloquium, Williamstown, MA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (1999))

"A Basic Overview of Analyzing Microarray Data" 2001
Statistics Seminar, Department of Statistics, University of California, Davis

"Outlier Detection: an Application to Microarray Data" 2001
Microarray Working Group, Department of Biostatistics, University of Washington, Seattle, WA

"Robust Model-Based Clustering of Genes in Microarray Data: Are there gene clusters?" 2000
Poster presenter, Critical Assessment of Microarray Data Analysis, Duke University, Durham, NC

"Robust Clustering with Minimum Covariance Determinant Estimation" 2000
Invited Speaker, 7th Conference of the International Federation of Classification Societies, Namur, Belgium

"The Distribution of Robust Distances" 1999
New Researchers Conference, Sponsored by the Institute of Mathematical Statistics, Baltimore, MD
(also presented at Joint Meeting of the Western North American Region of the International Biometric Society and the Institute of Mathematical Statistics, Seattle, WA (1999);
Workshop on Robust Analysis of Multivariate Data: Outlier Detection, Cluster Identification, and Data Mining. Technische Universität Braunschweig, Braunschweig, Germany (1998))

Other Presentations

"The objectivity of my desires... (and you thought statistics was boring!)" 2018
Pomona in the City, Seattle, WA

"Collaboration, Community, and Climate" 2018
Critical Issues in Mathematics Education Workshop, MSRI, Berkeley, CA

"Models, Bias, and Social Justice" 2017
Math Snacks, Department of Mathematics, Pomona College, CA

"Communities of Learning in a Math Department" 2016
AALAC Conference on Inclusivity in Economics, Pomona College, CA

"Finding Life's Music Through Statistical Noise" 2012
Fall Faculty Lecture Series, Pomona College, CA

"9 out of 10 Seniors Prefer This Freshman Seminar" 2012
Topic session on first year seminars in statistics:
Catch 'Em While They're Young: Statistics as a First-Year Seminar
Joint Statistical Meetings, San Diego, CA
(also presented at Family Weekend, Pomona College (2011); CAUSE Webinar, Teaching & Learning Series (2009))

"Bayes Goes to Bat: using baseball to introduce Bayesian estimation" 2009
CAUSE Webinar, Activity Series

"Polling and Exit Polling" 2008
Panel on Election Polling, Pomona College

"Statistical Conundrums" 2007
Parents' Weekend, Pomona College
(also presented at Mathematics Talent Search Honors Day, Pomona College (2005))

"Translating Statistical Results into Public Policy" 2003
Panelist for the forum on "The Translator's Art – Basic Problems in Different Languages," sponsored by the Pacific Basin Institute, Claremont, CA

College Service

Critical Thinking and Writing Committee	2018-2019
Posse Mentor (Chicago, PP13)	2017-2021
Faculty Personnel Committee	2016-2018
President, Pomona College Chapter of Phi Beta Kappa	2015-2016
Search committee to hire Athletic Director	2015
Pomona Scholars of Mathematics Faculty	2014-2017
Vice President, Pomona College Chapter of Phi Beta Kappa	2014-2015
Faculty Athletic Representative	2013-2016

Health Sciences Committee	2010-2011, 2012-2013
Ad Hoc Faculty Advisor, Pomona Student Union, 2010 - present	
Chair, search committee tenure-track line in Statistics	2009-2010
Grievance Committee	2008-2010
Dean Search Committee	2008
Orientation Committee	2006-2008
Chair, search committee to hire a three-year post-doctoral Statistician	2004-2005
Search committee to hire a Statistician at HMC	2004-2005
Search committee to hire a Bioinformatician (Biology department)	2004-2005
Smith Campus Center Planning Committee	2004-2005
Alumni Association Strategic Planning Committee	2004-2005
Ad Hoc Advisor, Pomona College Student Affairs Committee	2003-present
Alumni Admissions Volunteer, Pomona College	1995-present

Professional Service

Associate Editor, *The American Statistician*	2014-present
MAA Hogg Award Selection Committee	2014-2016
Judge, Intel International Science Fair	2011, 2014, 2017
elected Vice Chair, District 6, Council of Chapters Governing Board of ASA	2014-2016
ASA Workgroup to Revise the Undergraduate Guidelines for Statistics Programs	2013-2014
Associate Editor, *Journal of Statistics Education*	2013-present
Associate Editor, *Chance*	2010 - present
Search Committee for Executive Editor, *Chance*	2010 & 2013
Waller Education Award Committee	2008-2011
elected Treasurer, Southern California ASA	2008-2014
elected Representative-at-Large, ASA Section on Statistics Education	2007-2009
Reader, AP Statistics Exam	2006
Judge, WNAR Student Paper Competition	2006
President, Sigma Xi, Claremont Colleges Chapter	2004-2005
Chair, IMS New Researchers Committee	2004-2005
Co-founded and help organize Claremont Colleges Statistics Colloquium	2003-present
Vice President, Sigma Xi, Claremont Colleges Chapter	2003-2004
elected Secretary, Caucus for Women in Statistics	2002-2004
Member, New Researchers Committee	2002-2005
elected Representative-at-Large, Caucus for Women in Statistics	2000-2002

Referee, *Chance, Journal of the American Statistical Association, BMC Medical Genomics, Journal of Computational and Graphical Statistics, BMC Bioinformatics, Cancer Informatics, Statistics & Computing, Journal of Statistics Education, Statistics in Medicine, IEEE/ACM Transactions on Computational Biology and Bioinformatics, Briefings in Bioinformatics, Statistical Applications in Genetics and Molecular Biology, Bioinformatics, Computational Statistics and Data Analysis, Knowledge and Information Systems, The American Statistician, PLoS ONE, Reinvention: a Journal of Undergraduate Research*

Reviewer, Springer	2010
Reviewer, CRC Press	2009

Reviewer, Key College Press	2003
Reviewer, Prentice Hall	2003

Other Service

Introduction of Michael Starbird, honorary degree recipient	2014
Host for the Downing College Scholar	2014
Pomona Academy for Youth Success Faculty	2012
Enhancing Diversity in Graduate Education (EDGE) Instructor (short course)	2008
Summer Scholars Enrichment Program Mathematics Faculty	2008
Orientation Adventure faculty representative	2005, 2006
Summer Scholars Enrichment Program Research Faculty	2006
Seminar on how to use LaTeX for math undergraduates	2005, 2006, 2009
Organized a panel for undergraduates: "Women in Mathematics", Pomona College	2005
Volunteer Swim Instructor, Pomona College	2003
President, Division of Statistics Graduate Student Group	1999-2000
Teaching Assistant Consultant, Teaching Resources Center, UC Davis	1998-2000
Recruitment Committee, Division of Statistics, UC Davis	1998-2000
Mentor for Undergraduate, Opportunities in Engineering and Science, UC Davis	1998